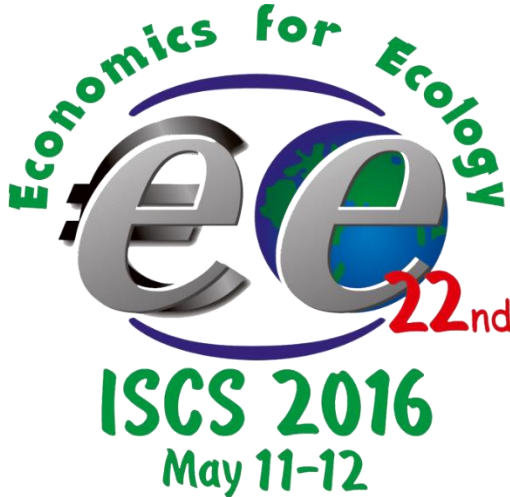Ministry of Education and Science of Ukraine
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ECONOMIC AND ECOLOGICAL FACTORS INFLUENCE ON POPULATION HEALTH IN UKRAINE

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One of the indicators that characterize social policy efficiency is the population health; the last is heavily depends on the state of the environment. Environmental pollution influence health quality resulting in increased diseases and mortality. Prolonged exposure to air pollution may lead to irritation, bronchitis, asthma, heart diseases, cancer at al. (Brunekreef et al., 1995; Hammitt et al., 2006; Neidell, 2004; Pope, 2007).

Human health depends on the state of the environment. According to the World Health Organization (WHO, 1994): "Environmental health comprises those aspects of human health, including quality of life, that are determined by physical, biological, social and psychological factors in the environment". Environmental health is related to the theory and practice of adverse factors influence minimization.

Factors that determine human health are very diverse. However several papers (Glouberman and Millar, 2003; Bilyavsky, 2004) reveal that health quality is on 50% determined by the way life (nutrition, work and household condition, sports etc.); 20% are attributed to the quality of the

environment and climate factors; 20% are due the genetic endowments and the rest 10% are attributed to the quality of healthcare system. In other words, all but genetic endowments are directly or indirectly related to economic factors.

The interaction between economic variables (basically economic growth) and human health are also multidirectional. Economic growth of the society promotes improvements in health care system, sanitation, medicine researches etc. However, some consequences of economic growth are life shortening ones. Economic growth is usually related to the energy consumption growth, which requires more fossil fuel combustion and/or more nuclear stations construction. Thus, energy productions as well as some other economic activities (chemical, metallurgical industries) do produce different negative externalities which are life shortening. Also, treating food sector as an industrial one requires the use of preservative technologies, nitrates in agriculture, GMO etc.

Economic growth and sophistication of social life do change modern health hazards comparing them with traditional ones. Thus, *traditional health hazards include*: disease and infectious viruses, housing and shelter, drinking water and sanitation, dietary deficiencies and reproduction, indoor air pollution from cooking and injuries in agriculture, etc. *Modern health hazards* include: tobacco smoking and alcohol consumption, water and outdoor air pollution, transport and workplace hazards, use of chemicals, complexities with food safety and security, growing urbanization, unhealthy work environment etc. Comparing traditional and modern health hazards, modern ones are not so aggressive and their negative effect is more lasting in time.

Our results indicate that the increase in radiation of thyroid gland on 30 cGy (radioactivity level) causes an increase of endocrine system illness by 30%. Also emissions do positively affect the number of endocrine diseases (increased pollution correlated with growing incidence). Relatively richer regions suffer from diseases of the endocrine system less than the economically weaker regions. Annual dummy variables in the endocrine system are significant and each year diseases of the endocrine system are increasing compared to the baseline in 2000

The average number of endocrine diseases in Ukraine is 13 people per 1000 population; the coastal regions suffer 6 people less per 1000 population. It requires deeper research (omitted variable bias, etc.) but still regions with sea access do suffer average 40% fewer endocrine diseases

than in the whole Ukraine. Also the average wage growth in 100 USD (in prices base 1999), is associated with a decrease in endocrine system by 16%. We estimated the health impact of pollution (Kubatko, 2011).

It was found, that pollution factors do influence health of population in Ukraine. The following results were received: first of all, the air emissions in tons per square kilometer are statistically significant and increase the number of cancer and cardio-vascular (heart) diseases. Secondly, influence of wages and other economic indicators, together with the social (e.g., the number of doctors) should be analyzed carefully due to the endogeneity and multicollinearity.

Table 1 - The estimated health impact due to the ecological factors

1 endocrine diseases	Economic interpretation
1.1 due to air pollution	
Average regression coefficient of ***air pollution*** impact ***on endocrine diseases*** (slope from the dose-response curve for health impact Appendix A) is 0,000007. Average illness among population is – 0,01267 (per 1000 of population). The endocrine diseases estimated health impact due air pollution is as follows: $dH_{endocrice(air)} = 0{,}000007/0{,}01267 = 0{,}00055$ or 0,055%	That is an increase in average regional emissions of air pollution on 100 thousand tons does increase endocrine diseases on 5.5%.
1.2. due to radiation	
Average regression coefficient of radiation impact on endocrine diseases) *(*slope from the dose-response curve for health impact table 2) is 0,000087. Average illness among population is– 0,01267 (per 1000 of population) $dH_{endocrice(radiat)} = 0{,}000087/0{,}01267 = 0{,}007$ or 0,7%	Also an increase in average regional radiation on thyroid due to Chernobyl disaster on 10 сГр in 1986 do increase endocrine diseases on 7% in analyzed period 2000-2006 .

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RENEWABLE ENERGY IN INDIA

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Renewable energy in India comes under the purview of the Ministry of New and Renewable Energy. India was the first country in the world to set up a ministry of non-conventional energy resources, in early 1980s. India's cumulative grid interactive or grid tied renewable energy capacity (excluding large hydro) has reached about 42 GW, of which 66% comes from wind, while solar PV contributed nearly 14.59% along with biomass and small hydro power of the renewable energy installed capacity in India.

The development of wind power in India began in the 1990s, and has significantly increased in the last few years. Although a relative newcomer